

# Q.brixx XL A104 TCK

## Thermocouple and Low Voltage Measurement Module

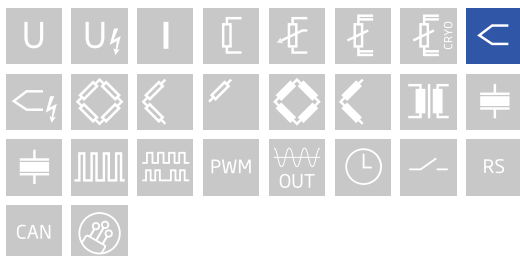
Q.brixx XL is a new addition to the Q.series product family - the ideal DAQ solution for on-the-go applications requiring higher performance in potentially harsh environments. Q.brixx XL DAQ systems consist of up to 16 measurement modules and an integrated, high-performance controller for communication, control, and data logging purposes, all within a robust aluminum housing capable of withstanding severe shock and vibration without sacrificing performance.

- High density and flexibility with 16 modules in one system in any constellation
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Connectable to Controller Q.station
- Power supply 10 ... 30 VDC

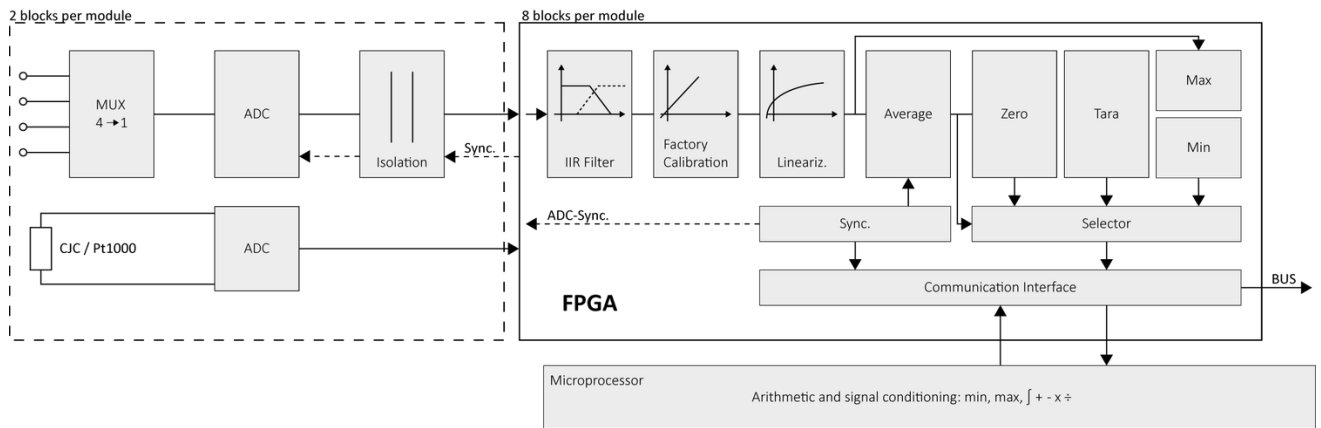


### Key Features

- 8 analog input channels  
thermocouple (type B / E / J / K / L / N / R / S / T / U), voltage ( $\pm 80$  mV)
- High-accuracy digitization  
24-bit ADC, 100 Hz sample rate per channel, 50/60 Hz mains rejection
- Automatic linearization correction  
optimal position of the interpolation points adjusted to the input range
- Simplified wiring  
direct connectivity with mini-TC plugs, built-in cold junction compensation
- Open thermocouple detection  
detect broken wire, loose connection or thermocouple burnout
- 3-Way galvanic isolation  
100 VDC channel to channel, 500 VDC channel to power supply and bank
- Electromagnetic compatibility (EMC)  
according to IEC 61000-4 and EN 55011



### Block diagram



### Technical Data

#### Analog Input

Channels	8
Accuracy	0.01 % typical
	0.025 % in controlled environment <sup>1</sup>
	0.05 % in industrial area <sup>2</sup>
Linearity error	0.01 % typical full-scale
Repeatability	0.003 % typical (within 24 hrs)
Input impedance	>10 MΩ
Isolation voltage	100 VDC channel to channel 500 VDC to power supply, channel to bus <sup>3</sup>

<sup>1</sup> according to EN 61326 2006: appendix B

<sup>2</sup> according to EN 61326 2006: appendix A

<sup>3</sup> noise pulses up to 1000 VDC, continuous up to 250 VDC

#### Voltage Measurement

Input range	±80 mV	
Margin of error	±10 μV	
Resolution	10 nV	
Long-term stability	<1 μV / 24 hrs	<10 μV / 8000 hrs
Temperature drift	<20 μV / 10 K Offset drift	<0.02 % / 10 K Gain drift
Signal-to-noise ratio	>100 dB at 100 Hz	

### Thermocouple Measurement

Deviation in the relevant Temperature range	Type	Range	Adjusted with cold junction compensation
The specifications are valid with enabled mains frequency rejection 50 Hz resp. 60 Hz	Type K	-100 to 1000°C	< ±0.5°C
		-270°C to 1372°C	< ±0,8°C
Long-term drift	<0.025°C / 24 h	< 0.05°C / 8000 h	
Temperature influence	Offset drift	Gain drift	
	<0.05°C / 10 K	< 0.02% / 10 K	
Uncertainty CJC	<0.3°C		

### Analog-to-Digital Conversion

Resolution	24-bit
Sample rate	100 Hz per channel fast mode 10 Hz per channel with 60 Hz mains frequency rejection 6 Hz per channel with 50 Hz mains frequency rejection
Modulation method	sigma-delta
Digital filters	Infinite impulse response (IIR), low-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 10 Hz (adjustable via software)
Averaging	configurable or automatic according to the user-defined data rate

### Communication Interface Localbus

Protocols	proprietary Localbus (115200 bps to 48 Mbps, latency <100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU
Data format	8E1
Electrical standard	ANSI/TIA/EIA-485-A, 2-wire

### Input Power

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	2 W (approx.)
Input voltage influence	< 0.001 % / V

### Environmental Specifications

Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 - 95 % at 50°C (non-condensing)

### Remarks

Validity of all listed specifications are subject to a warm-up period of at least 45 minutes

Specifications subject to change without notice

# Q.brixx XL A104 TCK

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## Mechanical information

Material	Aluminum
Measurements (W x H x D)	30x 137 x 135mm
Weight	approx. 500 g

## Ordering Information

Article number	521925
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## Gantner Instruments

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